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AUTHOR	Hale, Irlene W.
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ABSTRACT

One of the biggest problems in education is that of showing the necessity for the provision of library services and demonstrating the difference it makes in academic achievement. An even bigger difficulty, perhaps, has been the existence and application of instruments capable of giving statistical evidence. The problem of this study was to determine if library services, meaning of orientation, extent, use, and accessibility of books, materials, equipment and services by a qualified librarian, would produce a measurable increase in academic achievement over that of students who are not exposed to similar resources. The investigation involved two groups of twelfth grade students. One group used extensive library services with independent study under a librarian's supervision; in the other group library services were incidental. Comparing College Verbal Scholastic Aptitude Test scores for each group before and after the study, it is evident that academic achievement can accrue when students are exposed to library services. (Author/SG)

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DEPARTMENT OF LIBRARY EDUCATION

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THE INFLUENCE OF LIBRARY SERVICES UPON THE ACADEMIC ACHIEVEMENT OF TWELFTH GRADE STUDENTS AT CRESTWOOD SENIOR HIGH SCHOOL CHESAPEAKE, VIRGINIA

by

Irlene W. Hale

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TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION.....	1
	Background of the problem.....	1
	Statement of the problem.....	1
	Significance of the problem.....	2
	Hypothesis and basic assumptions.....	2
	Limitations of the study.....	3
	Definitions of terms used.....	4
II.	REVIEW OF THE LITERATURE.....	5
III.	RESEARCH METHODS.....	8
IV.	ANALYSIS OF FINDINGS.....	11
V.	SUMMARY AND CONCLUSIONS.....	19
VI.	REFERENCE MATERIALS.....	21
VII.	APPENDIX.....	24

THE INFLUENCE OF LIBRARY SERVICES UPON THE ACADEMIC ACHIEVEMENT OF TWELFTH GRADE STUDENTS AT CRESTWOOD SENIOR HIGH SCHOOL, CHESAPEAKE, VIRGINIA

I. INTRODUCTION

Background of the problem. The library is an essential part and at the very heart of the educational and instructional program of the school today.

Professor Frances Horne of the School of Library Services, Columbia University, has said:

> The very nature of the social order in this country may be shaped in large measure by the character of the libraries or by lack of libraries in the school.[1]

One of the greatest problems in education is that of showing the necessity for the provisions of library services clear to all and demonstrating the difference it makes in academic achievement specifically, and to the total educational pattern generally. And perhaps even a greater difficulty has been the existence and application of instruments capable of giving statistical evidence.

In keeping with those foregoing evaluations, this study will be another attempt to add a small insight into the visible and measurable educational outcomes of effective library services.

Statement of the problem. The problem of this study was to determine if library services, meaning orientation, extent, use, and accessibility of books, materials, equipment, and services by a qualified librarian, produce a measurable increase of academic achievement over that of students which are not exposed to similar resources.

This investigation involved twelfth grade students from two matched classes; one being given all kinds of library services, plus opportunity for independent library study under the supervision of the librarian; and the other class taught and supervised by classroom teachers with library services being incidental. This study involved an experimental group and a control group of approximately fifty students, during the school year 1968-69.

Significance of the problem. Librarians and educators have maintained that effective library services contribute to the academic achievements of the students it serves; however, few statistical studies have examined these relationships.

This evaluation may reinforce what has already been discovered about library services, but it is the writer's desire that other facts will be uncovered, and that future investigations will refine, revise, and furnish even better methods of determining statistical measurement for library and academic achievement.

Hypothesis. The hypothesis is, that there is not a statistically measurable effect on academic achievement of students involved in this study due to the nature and extent of library services.

Assumptions. Certain assumptions are basic to this study. The first is that the librarian will be a professionally trained person. The second basic assumption is that the function of the school library should be defined entirely by the educational program of the school. This assumption recognizes the school library as deriving its objectives from the school it serves. The third assumption is that students exposed to library services

will read a greater quantity and higher quality of books, and consequently, become more interested in other resources of the library. And in addition to this exposure, students will be challenged into independent library study which may go beyond that which is expected under the direct supervision of the classroom teacher.

Limitations of study. The purpose of this study was to evaluate the status of existing phenomenon of the problems of library services and academic achievement. The evaluator attempted to ask questions which were most comprehensive and pertinent. However, the questions were objective and did not deal with the more subtle forms of experiences. Many variables inevitably cover the results of an investigation of this nature. Socio-economic bacgrounds of students and schools may be a distracting factor, the nature of the library program in a particular school, the nature of the resources, the personality and effectiveness of the instruction or guidance from the librarian, and also effectiveness of the teachers in the classroom. It is not possible to predict that the nature of the library program in any given situation will be equal to that of another situation. However, it may be considered that most basic elements of the program will be found consistent from one to another. Any generalizations made on the basis of sample findings cannot be extended without reservations to the larger population of the United States.

Definitions of terms used.

Academic achievement refers to knowledge attained or skills developed in the school subjects, usually designated by test scores or by marks assigned by teachers, or by both.

Evaluation refers to the process of studying and analyzing the strengths and the limitations of existing services for the purposes of making improvements.

Library services refers to all resources--library orientation, books, periodicals, films, pictures, records, audio-visual equipment, and qualified professional services which supplement and implement learning.

Needs of students refers to those things necessary to assure optimum development of the potential abilities of a student--intellectual, physical, moral, emotional and social--both in relation to his present interests, abilities, and level of achievement and in relation to the probable future demands of the individual and of society.

Objectives refers to desired changes in the behavior of students as a result of experiences directed by the school.

Professionally trained or qualified librarian refers to a fully qualified librarian who has at least a fifth year of library education and state certification as a school librarian.

II. REVIEW OF RELATED LITERATURE

It has been estimated that in the secondary schools of the future, students will spend forty percent of their time in independent study--activities including reading, listening, viewing, and working with audio-motivated services or devices. The school library will be the center of much of this activity with the librarian serving as the coordinating or supervisory factor.[2]

If the school library is as important as we say it is, we need the existence of instruments capable of giving statistical evidence. Ella Jean Wilson's research in this area employs such techniques and points out measurable differences in various areas of learning between students. She employed the Gaver[4] instruments in her efforts to determine whether the quality of learning is measurably strengthened for students who have had centralized library programs administered by a professional librarian. The overall results attained in this study have demonstrated that in most cases the educational advantages accruing to students in schools with libraries and librarians can be discerned.

El-Hagrasy's[5] investigation was particularly pertinent with the evaluation of library services in relationship to the reference skills and reading of students. The main hypothesis of Hagrasy's study was that there should be a measurable relationship between the predictors, teachers' reading habits, teachers' library backgrounds and the criteria: pupils' amount and kind of reading--pupils' library skills. The hypothesis was substantiated. Hagrasy concluded when teachers' reading habits and literary

backgrounds are also significantly low, his class' reading and library skills are low; and conversely, when a class' reading and library skills are significantly high, the teachers' reading habits and library background must be relatively high.

Dorothy M. Hastings' study[6] The Influence of Library Work in Improving English Language Skills at the High School Level, reveals similar findings. The purpose of the study was to determine whether improved English language skills could be developed at the tenth-grade level through systematic library experiences in place of the traditional emphasis on formal English grammar. A comparison between the pre-test and post-test scores in the California Language Test reveals that the aggregate experimental groups made statistically significant gains over the initial scores in total language skills and in spelling. On the other hand, the aggregate control groups failed to make significant gain over their initial test scores.

The study of Mary V. Gaver and Milbrey L. Jones,[7] Secondary Library Services: A Search for Essentials, attempts to define the term "school library services," to identify some of the services, and report on evidence concerning which services are performed in two sample groups of secondary school libraries. Probably the most single factor determining the success of the school library program is the extent to which teachers motivate their students to use the library and its resources.

Neal Miller Gross[8] in his study, Evaluating the Use of School Library Books According to the Needs of the Student and the Philosophy of the School, points out that many standardized methods of evaluation are inadequate

because the evaluations are not made in terms of the needs of their particular institutions. The method of evaluation proposed in his study takes the purpose of the student into consideration, and the way in which materials are read, and judges the materials and their use on the basis of the particular need of the individual and the objectives of the school.

One of the most recent and significant experiments in school library history was the million dollar Knapp School Library Development Project,[9] which was dedicated to demonstrating that improved libraries equal improved learning. Two very relevant studies grew out of one school's participation in this project. One, conducted by Stephen R. Myers,[10] a graduate student of Brighan Young University, was for the purpose of determining the influence of library usage on academic achievement. Over a period of twenty-one weeks, forty-five eighth grade students were asked to record their use of the library and kinds of activities they engaged in while in the library. Mr. Myer's hypothesis was that the usage on the academic achievements would not be statistically significant. The following conclusions were established: (1) Although not statistically significant, library activities had some influence on academic achievements of the selected students in the study; and (2) The teaching of library skills may be a valuable tool in contributing to academic achievement. The second study undertaken by Lucille M. Thorne,[11] was an effort to determine (1) The influence of augumented school library services as they relate to the reading comprehension of pupils; and (2) The influence of the augumented library services on the acquisition of the knowledge of library skills of the pupils. The writer concluded that augumented library services were influential in promoting the growth of reading comprehension and in the acquisition of knowledge of library skills.

The foregoing related studies, and others the writer reviewed, undertook to identify relationships between academic achievements and library services. Other studies could have been added, but these were selected as the best insights into the problem.

III. RESEARCH METHODS

Crestwood Senior High School, a Negro school, located in Chesapeake, Virginia, has been in existence since 1954. The school is located in a rural, but rapidly expanding cosmopolitan area which has experienced changes in population, government, surroundings, and name. The approximately 1300 students are transported as far as twenty-five miles to the school. The socio-economic backgrounds of many of these students are comparatively low, however, they are orientated to a well-balanced curriculum. The school's acceptance of its role in a changing community is indicative of its interest in quality education.

The study was conducted among two classes from the twelfth grade involving approximately fifty students. The Experimental Group was exposed to all kinds of library services, plus independent library study under the supervision of the library program; and the Control Group was taught and supervised by the classroom teachers, with library services being incidental, or as requested by the teachers.

The Guidance Department grouped the students according to ability tests and achievement test scores, and the two groups represented students with abilities as nearly equal as possible. For the purposes of this study the Guidance Department made the decision of selecting the Scholastic Aptitude Verbal Test, offered by the College Entrance Examination Board, a nonprofit

membership organization that provides tests and other educational services for schools and colleges. The tests are generally known and understood and measure the ability to use words and read with understanding which are also objectives of the library program. Students are encouraged to take the Scholastic Aptitude Test more than one time, so the test scores for two different testings were readily accessible. The scores were used from the fall testing, and again from the spring testing, to determine the amount of progress during the study. It must be remembered that SAT, as is true of other tests, is not an infalliable measure of an individual's academic ability. There is, in fact, no single method of precisely predicting or ascertaining an individual's academic achievement, but we did accept these tests as ones which could forecast with some degree of accuracy a student's academic performance. The test scores were tabulated, with scores from the first and second testings, and the mean scores were compared and evaluated for significance.

The Experimental Group was scheduled to the library at various times under the supervision of the librarian, subject teacher, or for independent study. These classes received regular instructions from the subject teachers, following a prescribed course of study. All subject teachers who were involved with the fifty students in the four general curriculum areas--English, Social Sciences, Physical Sciences, and Mathematics, participated in the study, and their students received library instructions geared to their particular subject area. The teachers made assignments, conducted class discussions, gave lectures, heard reports, presented filmms, undertook projects, and made use of all types of audio-visual materials. Tests were given periodically, and the teachers assumed the general responsibility for all class activities. The librarian permitted the students to

pursue independent study and research under the general rules of the library. However, the librarian prepared bibliographies, assisted in locating materials when necessary, acquired materials from outside sources if accessible, made references to related materials, had conferences with students, answered questions, helped with setting up audio-visual materials and equipment, called in outside resource people in the community, and coordinated all materials and services that would enrich the educational experiences that related to the subject areas.

The Experimental class was given a series of Library Lessons: First Series, Purposes of a Library and Responsibilities of Library Users; Second Series, Parts of a Book, Classification of Books, and the Card Catalog; Third Series, The Dictionary, The Encyclopedia, and Special References; Fourth Series, Vertical File and Audio-Visual Materials and Equipment; and the Fifth Series, Making Bibliographies, Note-Taking, Outlining and Writing. The lessons were geared to each subject area and followed the course of study as set up for each specific area.

The Experimental Group was given a Library Skills Test at the beginning of the school year and again at the end of the school year. The tests were administered by the librarian. The test scores were tabulated, with scores from the first and second testings, and the mean scores were compared and evaluated for significance.

The Control Group functioned with normal classroom situations under the direction or supervision of teachers, and the library carried on its usual program, and gave assistance, guidance, and special services, as requested, or as necessary.

IV. ANALYSIS AND FINDINGS

The purpose of this study was to determine if the utilization of library services, under the supervision of a qualified librarian, produced a measurable increase of academic achievement over that of students which are not exposed to similar resources.

After a review of the related literature, the writer designed a Library Skills Questionnaire to test students' knowledge about library skills and resources and their application for discovering knowledge in various subject areas. (See Appendix for sample questionnaire) The test was administered at the beginning of the study and again at the close of the study to all students involved in the experimental and control groups. The questionnaire consisted of fifty items selected at random from a sampling of one-hundred questions, with a total value of one-hundred points or two points per question.

Response from the Control group pre-test scores are presented in Tables II and III; responses from the Experimental group pre-test scores are presented in Tables VI and VII. The pre-test mean average of 79 for the control group and the pre-test mean average of 78.3 for the experimental group reveals a difference of .7 between the two groups. The two groups were considered as being comparable so far as library concepts were concerned at the beginning stages of the study.

Responses from the Control group post-test scores are presented in Table IV and V; responses from the Experimental group are presented in Tables VIII and IX. The pretest mean average of 79 for the Control Group as compared to the post test mean average of 93.4 of the Experimental

group represents a gain of 14.5. These findings suggested that comparable students accomplished more receiving library instruction and assistance from the librarian as opposed to the subject teacher.

Computations from the College Board Verbal Scholastic Aptitude Test Scores revealed the amount of progress the two groups achieved during the period of study. The College Verbal Scholastic Aptitude Test Scores are presented in Table X as recorded from the students permanent records. (See Appendix) Students were assigned numbers so as not to disclose their identities.

The tally and frequency table of College Board Verbal Scholastic Aptitude Test Scores for the pre-test and post-test Experimental group and Control group are presented in Tables XI and XII respectively.

The pre-test mean average of the Experimental group was 392.2 as compared with the pre-test mean average of 382.8 of the Control group. The post-test mean average of the Experimental group was 441.2 as compared with the post-test mean average of 391.6 of the Control group.

The Experimental group's pre-test mean average was 392.2 and a post-test mean average of 441.2 . This represents a gain of 49 points.

The Control group's mean average was 382.8 and the post-test mean average was 391.6 or a gain of only 8.8 points. These findings disclose insights into measurable educational outcomes of effective library services administered by a qualified librarian.

TABLE II

TALLY AND FREQUENCY TABLE FOR 25 PRE-TEST LIBRARY SKILLS TEST SCORES

CONTROL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

DESIGNATION	DESIGNATION LIMITATIONS	TALLY	f
87 - 89	86.5 - 89.5	1	1
84 - 86	83.5 - 86.5	111111	6
81 - 83	80.5 - 83.5	111111	6
78 - 80	77.5 - 80.5	111	3
75 - 77	74.5 - 77.5	11	2
72 - 74	71.5 - 74.5	11	2
69 - 72	68.5 - 71.5	11111	5
		n =	25

TABLE III

CALCULATION OF THE MEAN FOR 25 PRE-TEST LIBRARY SKILLS TEST SCORES

CONTROL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

STEP	MIDPOINT (X)	f	fx
86.5 - 89.5	88	1	88
83.5 - 86.5	85	6	510
80.5 - 83.5	82	6	492
77.5 - 80.5	79	3	237
74.5 - 77.5	76	2	152
71.5 - 74.5	73	2	146
68.5 - 71.5	70	5	350
		n = 25	Sfx = 1975

$X = \frac{Sfx}{n} = \frac{1975}{25} = 79.$

TABLE IV

TALLY AND FREQUENCY TABLE FOR 25 POST-TEST LIBRARY SKILLS TEST SCORES

CONTROL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

DESIGNATION	DESIGNATION LIMITATIONS	TALLY	f
88 - 90	87.5 - 90.5	1	1
85 - 87	84.5 - 87.5	1	1
82 - 84	81.5 - 84.5	11111111	8
79 - 81	78.5 - 81.5	111111	6
76 - 78	75.5 - 78.5	111	3
73 - 75	72.5 - 75.5	0	0
70 - 72	69.5 - 72.5	111111	6
		n =	25

TABLE V

CALCULATION OF THE MEAN FOR 25 POST-TEST LIBRARY SKILLS TEST SCORES

CONTROL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

STEP	MIDPOINT (X)	f	fx
87.5 - 90.5	89	1	89
84.5 - 87.5	86	1	86
81.5 - 84.5	83	8	664
78.5 - 81.5	80	6	480
72.5 - 75.5	74	0	0
69.5 - 72.5	71	6	426
		n = 25	Sfx = 1976

$$X = \frac{Sfx}{n} = \frac{1976}{25} = 79.0$$

TABLE VI

TALLY AND FREQUENCY TABLE FOR 25 PRE-TEST LIBRARY SKILLS TEST SCORES
EXPERIMENTAL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

DESIGNATION	DESIGNATION LIMITATIONS	TALLY	f
89 91	88.5 - 91.5	1	1
86 - 88	85.5 - 88.5	111	3
83 - 85	82.5 - 86.5	111	3
80 - 82	79.5 - 82.5	111111	6
77 - 79	76.5 - 79.5	11	2
74 - 76	73.5 - 76.5	11111	5
71 - 73	70.5 - 73.5	1	1
68 - 70	67.5 - 70.5	1111	4
		n =	25

TABLE VII
CALCULATION OF THE MEAN FOR 25 PRE-TEST LIBRARY SKILLS TEST SCORES
EXPERIMENTAL GROUP
CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

STEP	MIDPOINT (X)	f	fx
88.5 - 91.5	90	1	90
85.5 - 88.5	87	3	251
82.5 - 86.5	84	3	252
79.5 - 82.5	81	6	486
76.5 - 79.5	78	2	156
73.5 - 76.5	75	5	375
70.5 - 73.5	72	1	72
67.5 - 70.5	69	4	276
		n = 25	Sfx = 1958

$$X = \frac{Sfx}{n} = \frac{1958}{25} = 78.3$$

TABLE VIII

TALLY AND FREQUENCY TABLE FOR 25 POST-TEST LIBRARY SKILLS TEST SCORES
EXPERIMENTAL GROUP

CRESTWOOD SENIOR HIGH SCHOOL
Chesapeake, Virginia

DESIGNATION	DESIGNATION LIMITATIONS	TALLY	f
99 - 101	98.5 - 101.5	1	1
96 - 98	95.5 - 98.5	1111111	7
93 - 95	92.5 - 95.5	1111111	7
90 - 92	89.5 - 92.5	111111	6
87 - 89	86.5 - 89.5	1111	4
		n =	25

TABLE IX

CALCULATION OF THE MEAN FOR 25 POST-TEST LIBRARY SKILLS TEST SCORES
EXPERIMENTAL GROUP

CRESTWOOD SENIOR HIGH SCHOOL

Chesapeake, Virginia

STEP	MIDPOINT (X)	f	fx
98.5 - 101.5	100	1	100
98.5 - 98.5	97	7	679
92.5 - 95.5	94	7	658
89.5 - 92.5	91	6	546
86.5 - 89.5	88	4	352
		n = 25	S fx = 2335

$$X = \frac{Sfx}{n} = \frac{2335}{25} = 93.4$$

TABLE XI

TALLY AND FREQUENCY TABLE OF COLLEGE BOARD VERBAL SCHOLASTIC APTITUDE TEST SCORES

TWO TWELFTH GRADE CLASSES, CRESTWOOD SENIOR HIGH SCHOOL, CHESAPEAKE, VIRGINIA

INTERVAL	Pre-Test Experimental Group				Post-Test Experimental Group			
	Tally	f	d	fd	Tally	f	d	fd
580-599	1	1	8	8	0	0	7	0
560-579	0	0	7	0	11	2	6	12
540-569	0	0	0	0	0	0	5	0
523-539	0	0	5	0	0	0	4	0
500-519	0	0	4	0	11	2	3	6
480-499	1	1	3	3	11	2	2	4
460-479	111	3	2	6	111	3	1	3 (+25)
440-459	11	2	1	2(+19)	11111	5	0	0
420-439	1111	4	0	0	111	3	-1	-3
400-419	1	1	-1	-1	0	0	0	0
380-399	0	0	-2	-0	1	1	-3	-3
340-359	111	3	-4	-12	11	2	-4	-8
320-339	111111	6	-5	-30	1111	4	-5	-20 (-36)
300-319	1	1	-6	-6				
280-299	11	2	-7	-14(-66)				
270-279								
		N= 25		fd-47		N=25		fd =-11

$M = AM + \frac{Sfd}{N} \times i$

$M = 430 + \frac{-47}{25} \times 20$

$M = 430 + \frac{-940}{25}$

$M = 430 - 37.8$

$M = 392.2$

$M = AM + \frac{Sfd}{N} \times i$

$M = 450 + \frac{-11}{25} \times 20$

$M = 450 - \frac{220}{25}$

$M = 450 - 8.8$

$M = 441.2$

TABLE XII

TALLY AND FREQUENCY TABLE OF COLLEGE BOARD VERBAL SCHOLASTIC APTITUDE TEST SCORES

TWO TWELFTH GRADE CLASSES, CRESTWOOD SENIOR HIGH SCHOOL, CHESAPEAKE, VIRGINIA

INTERVAL	Pre-Test Control Group				Post-Test Control Group			
	Tally	f	d	fd	Tally	f	d	fd
580-599	0	0	8	0	0	0	7	0
560-579	0	0	7	0	0	0	6	0
540-569	0	0	6	0	0	0	5	0
520-539	0	0	5	0	1	1	4	4
500-519	0	0	4	0	1	1	3	3
480-499	1	1	3	3	0	0	2	0
460-479	1	1	2	2	1	1	1	1(+8)
440-459	11	2	1	2(+7)				
					111	3	0	0
420-439	1111	4	0	0	111	3	-1	-3
400-419	111	3	-1	-3	1	1	-2	-2
380-399	0	0	-2	-0	11	2	-3	-6
360-379	1111	4	-3	-12	11	2	-4	-8
340-359	11111	5	-4	-20	111111	6	-5	-20
320-339	1	1	-5	-6	111	3	-6	-18
300-319	111	3	-6	-18	11	2	-7	-14(-81)
280-299	1	1	-7	-7(-66)				
		N =25		fd= -59		N= 25		fd = -73

$M = \dagger \frac{Sfd}{n} \times i$

$M = 430 + \frac{-59}{25} \times 20$

$M = 430 - \frac{1180}{25}$

$M = 430 - 47.2$

$M = 382.8$

$M = \dagger \frac{Sfd}{n} \times i$

$M = 450 + \frac{-73}{25} \times 20$

$M = 450 \frac{-1460}{25}$

$M = 450 - 58.4$

$M = 391.6$

V. SUMMARY AND CONCLUSIONS

The over-all results attained in this study have demonstrated that academic achievement can accrue when students have been exposed to library services. The study undertook to seek answers to some specific questions:

1. Is there a measurable effect upon the learning of students exposed to library skills and services?

2. Is there measurable academic achievement of students in a special subject area who have been exposed to library services as compared to those who have not?

3. Are there other benefits discernable, for example, independent study, enthusiasm for continuation of library usage, reading habits, etc., as the results of guided library services?

The following are answers to these questions based on observations of the findings:

1. There is a measurable effect upon the learning of students exposed to library skills and services. The mean difference of the two groups was 13.4.

2. There is a measurable extent of academic achievemnt among students who have been exposed to library services as compared to those who have not. The mean difference between the two groups was 49.

3. There was a remarkable enthusiasm demonstrated among the group who pursued independent study in the library. Many students went beyond the demands or requirements of the teacher to further pursue knowledge that they became interested in.

4. General library utilization becomes spontaneous. Other students sensed the enthusiasm and expressed their desire to become involved in order to reap the rewards of library utilization.

5. A library must be well staffed and fully equipped to meet the demands and needs for effective library programs.

RECOMMENDATIONS

In consideration of the findings and the conclusions of this study, I would make the following recommendations:

1. All students should be given the benefits of Library Service to give them full knowledge of the library's resources, services, and an introduction to many carry-over advantages.
2. Since Independent Study may be realized as a very desirable outgrowth of effective Library Services, this activity should be motivated and fostered.
3. The library should serve as the Resource Center for the entire curriculum of the school. All departments should correlate their activities around the resources and activities of the library.
4. The library must become fully qualified in personnel and resources to assume the full responsibility of assuming its obligations of enriching and bringing forth bigger dividends in the learning process.
5. Further research should be done to determine the influence of library services on Academic Achievement in all subject areas.
6. Varied types of tests should be used in an effort to determine the amount or extent of academic achievement.

VI. REFERENCE MATERIALS

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VII. APPENDIX

TABLE I

LIBRARY SKILLS TEST SCORES OF TWO TWELFTH GRADE CLASSES
CRESTWOOD SENIOR HIGH SCHOOL, CHESAPEAKE, VIRGINIA

SUBJECT	CONTROL GROUP PRE-TEST	POST-TEST	SUBJECT	EXPERIMENTAL GROUP PRE-TEST	POST-TEST
1	88	90	1	90	100
2	86	86	2	86	98
3	84	84	3	86	96
4	84	84	4	86	96
5	84	84	5	84	96
6	84	84	6	84	96
7	84	84	7	84	96
8	82	80	8	82	96
9	82	80	9	82	94
10	80	82	10	80	94
11	80	82	11	80	94
12	80	82	12	80	94
13	80	84	13	80	94
14	78	80	14	78	94
15	78	80	15	78	94
16	78	80	16	76	92
17	76	80	17	76	92
18	76	78	18	76	92
19	74	76	19	74	90
20	74	70	20	74	90
21	70	70	21	72	90
22	70	70	22	70	88
23	70	70	23	70	88
24	68	70	24	70	88
25	68	70	25	70	88

TABLE X

COLLEGE BOARD VERBAL SCHOLASTIC APTITUDE TEST SCORES

TWO TWELFTH GRADE CLASSES, CRESTWOOD SENIOR HIGH SCHOOL, CHESAPEAKE, VIRGINIA

SUBJECT	EXPERIMENTAL GROUP		CONTROL GROUP	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
1	590	577	486	538
2	459	571	475	500
3	483	505	450	474
4	452	506	440	451
5	438	486	437	445
6	341	492	430	438
7	445	479	430	440
8	300	466	425	348
9	466	473	418	430
10	438	459	418	420
11	479	458	403	394
12	431	466	376	381
13	431	466	367	361
14	410	433	365	348
15	369	446	360	368
16	293	420	358	400
17	355	420	350	355
18	357	381	347	345
19	293	361	345	340
20	334	358	344	348
21	330	340	330	335
22	330	339	315	325
23	328	335	305	312
24	326	335	310	305
25	325	330	281	358

LIBRARY SKILLS QUESTIONNAIRE

HOW MUCH DO YOU KNOW ABOUT LIBRARY SKILLS AND RESOURCES AND THEIR APPLICATION FOR DISCOVERING KNOWLEDGE IN VARIOUS SUBJECTS?

Directions: Please select the best answer to the following questions and place your choice in the proper places provided on the answer sheet. Your cooperation will help us in improving library skills and services.

(Answers encircled for those grading tests)

1. A bibliography is
   (a) A collection of articles
   (b) An alphabetical listing of books
   (c) The life story of a person

2. The most important use of the index in a book is to direct you to the page or pages for
   (a) Chapter titles
   (b) Certain illustrations
   (c) Discussions on specific topics

3. Mark one item below which would not appear on the title page of a book.
   (a) Copyright
   (b) Publisher
   (c) Author

4. The best way to scan, or quickly examine the information available in a book, is to look over
   (a) The latest copyright date and preface
   (b) Title page and Table of Contents
   (c) The main headings in the Table of Contents and Index

5. The call number has been called the "key" to the library. In which place below will you find this key written?
   (a) On the card in the catalog
   (b) On the 50th page of each book in the library
   (c) On the library pass

6. The main purpose of the call number is to
   (a) Tell the location of the book in the library
   (b) Provide a code number for the librarian
   (c) Tell when the book is out

7. Books of fiction are arranged alphabetically on the shelves according to
   (a) Title
   (b) Author
   (c) Size

8. Biographies are arranged alphabetically according to
   (a) Title
   (b) Person written about
   (c) Author

9. The classification number on a book is the symbol of
   (a) Subject
   (b) Title
   (c) Price

10. The biographies of living people only are listed in
   (a) Who's Who in America
   (b) World Almanac
   (c) Junior Book of Authors

11. The articles in World Book Encyclopedia and Compton's Pictured Encyclopedia are arranged
   (a) In the order in which things happened
   (b) Alphabetically by subject
   (c) In the order of importance of the subject

12. The name and locations of important rivers, mountains and oceans can be found in
   (a) Atlases
   (b) Almanacs
   (c) Dictionaries

13. Cross references in any encyclopedia refer you to
   (a) Useful reference books
   (b) Other articles on topics related to the one you are reading
   (c) Other encyclopedias

14. A bibliography of references you used for a report helps you to
   (a) Keep a record of class notes
   (b) Show the sources of information you used
   (c) Outline the report

15. A book having a collection of several biographies would have the Dewey Decimal number
   (a) 92
   (b) 920
   (c) 973

16. You plan to give a report of a recently published book and you wish to know what the critics have said about it. The best source to use would be
   (a) Twenty Century Authors
   (b) Book Review Digest
   (c) World Book Encyclopedia

17. The best book in which to find the name of the person who said, "A stitch in time saves nine," is
   (a) A dictionary
   (b) Literature book
   (c) A book of quotations

18. The best and quickest way to find a certain short story is to consult
    (a) Short Story Index
    (b) Literature books
    (c) Readers Guide

19. The best relatively inexpensive but highly reliable source for all kinds of information is
    (a) Dictionaries
    (b) Atlases
    (c) Encyclopedias

20. The Vertical File contains a collection of
    (a) Pamphlets
    (b) Magazines
    (c) Correspondence

21. A bible could be found in
    (a) 100's
    (b) 200's
    (c) 300's

22. A supplement which brings an encyclopedia set up-to-date is called
    (a) An Index
    (b) A Yearbook
    (c) A catalog

23. Granger's Index to Poetry is
    (a) A list of all the poems that have been written
    (b) A list of words which rhyme with other words
    (c) A book which tells you where you can find certain poems

24. The Articles of Confederation can be found in
    (a) New International Year-Book
    (b) Statesman's Year-Book
    (c) Harper's Encyclopedia of U. S. History

25. Sketches of living Americans can be found in
    (a) Dictionary of American Biography
    (b) Lippincott's Biographical Dictionary
    (c) Current Biography

26. The origin of famous names in fiction may be found in
    (a) Baker's Guide to Best Fiction
    (b) Brewer's Readers Handbook
    (c) Readers' Guide

27. The author and source of poetry and recitations may be found in
    (a) Firkins-Index to Short Stories
    (b) Granger Index to Poetry and Recitations
    (c) Book Review Digest

28. The Statistical Abstract of the U. S. contains
    (a) Statistical tables of the last census
    (b) Abstract of deeds
    (c) Statistics about government

29. In which book would you look to find a review of Cather's "The Lost Lady"?
(a) Brewer's Readers Handbook
(b) Cumulative Index
(c) Book Review Digest

30. Where would you find the name of the representative in Congress from your district?
(a) Ayer's American Newspaper Annual
(b) World Almanac
(c) U. S. Congressional Directory

31. Where would you find the etymology of the world "balance"?
(a) Crabb-English Synonyms
(b) Murray-New English Dictionary
(c) Roget-The Source of English Words

32. Hoyt's Cyclopedia of Practical Quotations is arranged
(a) Chronologically under author and quotation
(b) Alphabetically under subject and quotation
(c) First line of quotations

33. You can find a critical estimate of Tennyson in
(a) Moulton-Library of Literary Criticism
(b) Harvard Classics
(c) Cambridge History of English Literature

34. Dictionary of National Biography contains lives of prominent people of
(a) All nationalities
(b) Europeans only
(c) British nationality only

35. Where would you find a concise statement on music printing?
(a) Gove-Dictionary of Music and Musicians
(b) New International Encyclopedia
(c) American Yearbook

36. How did the U. S. come to be called "Uncle Sam"? Look in
(a) Frey-Sobriquets & Nicknames
(b) Wheeler-Explanatory & Pronouncing Dictionary of the noted names of fiction
(c) Dictionary of Phrase and Fable

37. Lippincott's Gazetteer is a geographical dictionary of the world and contains
(a) Brief descriptions of cities, towns, rivers, etc. on the world
(b) New International Yearbook
(c) Political and historical maps

38. Current statistics of various kinds may be gotten from the
(a) World Almanac
(b) New International Yearbook
(c) American Yearbook

39. Larned-History of Ready Reference is a dictionary of universal history. Entries are:
(a) Original
(b) Quoted articles or extracts from recognized historical authorities
(c) Magazine articles

40. Where can you find a description of Christmas customs?
(a) Brewer's Reader's Handbook
(b) Chamber's Book of Days
(c) Bliss-Cyclopedia of Social Reform

41. A Mathematical Dictionary gives
(a) History of Math
(b) Terms, names, symbols, and meanings of pure and applied math
(c) References to math books

42. The Great Books of the Western World
(a) Preserves the great cultures of western civilization
(b) Presents the thoughts of great philosophers
(c) Emphasizes the contributions of great artists

43. The Negro Heritage Series portrays
(a) The Negroes proud heritage and notable achievements
(b) The Negroes success in American History
(c) The Negroes contributions in Art and Music

44. Specialized encyclopedias treat a specific area of knowledge, for example,
(a) Compton's Pictured Encyclopedia
(b) The Encyclopedia of Philosophy
(c) Collier's Encyclopedia

45. Books on Atheism, which does not believe in God, would be found in
(a) 200
(b) 300
(c) 900

46. Ethics is the science of right conduct and character. Books dealing with this subject would be found in
(a) 100
(b) 600
(c) 800

47. An exact copy of an original in all its proportions, qualities, and peculiarities is known as
(a) Reprint
(b) Facsimile
(c) Duplication

48. Anything which is changed or modified, as Lamb's Tales from Shakespeare is called
(a) adaptation
(b) synopsis
(c) abstract

49. A system for classifying books originated by Melville Dewey is known as
(a) Library of Congress Classification
(b) Decimal Classification
(c) Form classification

50. Select the correct Dewey Decimal Classification number for World Book Encyclopedia
(a) 800
(b) 030
(c) 200